

## ABSTRACT

It is, accordingly, an object of the present teachings to provide fuel injectors that can prevent leakage of noise, which is caused by contact of the valve with the valve seat, to the outside of the fuel injector. a representative injector may comprise a fuel passage, a valve, a valve seat, a jet opening and a jet opening downstream channel. The valve is disposed on the fuel passage and the valve seat receives the valve. The jet opening is formed in the valve seat and through which fuel is exhausted. The jet opening may be opened when the valve is moved apart from the valve seat. The jet opening downstream channel extends downstream from the jet opening through the valve seat and communicates the jet opening to the outside. The diameter of the jet opening downstream channel may be arranged and adapted such that the valve seat has a wall thickness to prevent leakage of noise to the outside through the valve seat. Because the diameter of the jet opening downstream channel is designed to be smaller and the wall thickness of the valve seat is designed to be greater, the representative injector can effectively prevent leakage of noise to the outside through the valve seat.